

2006 Ozone Season Summary Report



Purpose

This ozone season summary looks at the ozone levels in the 2006 season and trends over the last six seasons. Currently, Indiana monitors ozone levels for the 8-hour ozone standard that was established in July 1997 by the U.S. EPA. The 8-hour standard of 85 parts per billion (ppb) averaged over an eight hour period is a stricter standard for ozone than the old 1-hour standard and is more protective of public health. An area is in violation of the standard when the *design value*, which is the three-year average of the fourth highest value for each ozone season, is equal to or greater than 85 ppb.

Indiana monitors ozone in areas where levels are expected to be higher because of the effects of population density and manufacturing activities and where more citizens may be exposed to unhealthy air. IDEM and local air agencies collect and report data from 41 ozone monitors across Indiana. During the 2006 ozone season, no ozone monitors were added, discontinued or relocated.

Ozone Designations and Redesignations

On April 15, 2004, the U.S. EPA designated areas for the new 8-hour ozone health standard and categorized them as attainment, nonattainment or unclassifiable. In its initial announcement, 23 counties and 1 township in Indiana were identified as being in violation of the new 8-hour standard of 85 ppb. However, data collected during the 2004 ozone season indicated that at the close of the season, Delaware, Greene, Jackson, Vigo, Vanderburgh and Warrick counties had attained the new 8-hour standard. The U.S. EPA approved Redesignation Petitions and Maintenance Plans for these counties in 2005.

During the 2005 ozone season, 31 of Indiana's 41 ozone monitors measured a 4th high value below the standard and 40 out of 41 monitors recorded a three-year design value that met the standard, leaving only one monitor (Hamilton County) exceeding the standard. Additionally, eight more counties met the standard at the end of the 2005 ozone season. IDEM submitted Redesignation Petitions and Maintenance Plans for Allen, Clark, Elkhart, Floyd, LaPorte, Lake, Porter and St. Joseph counties to U.S. EPA and action is expected by late 2006.

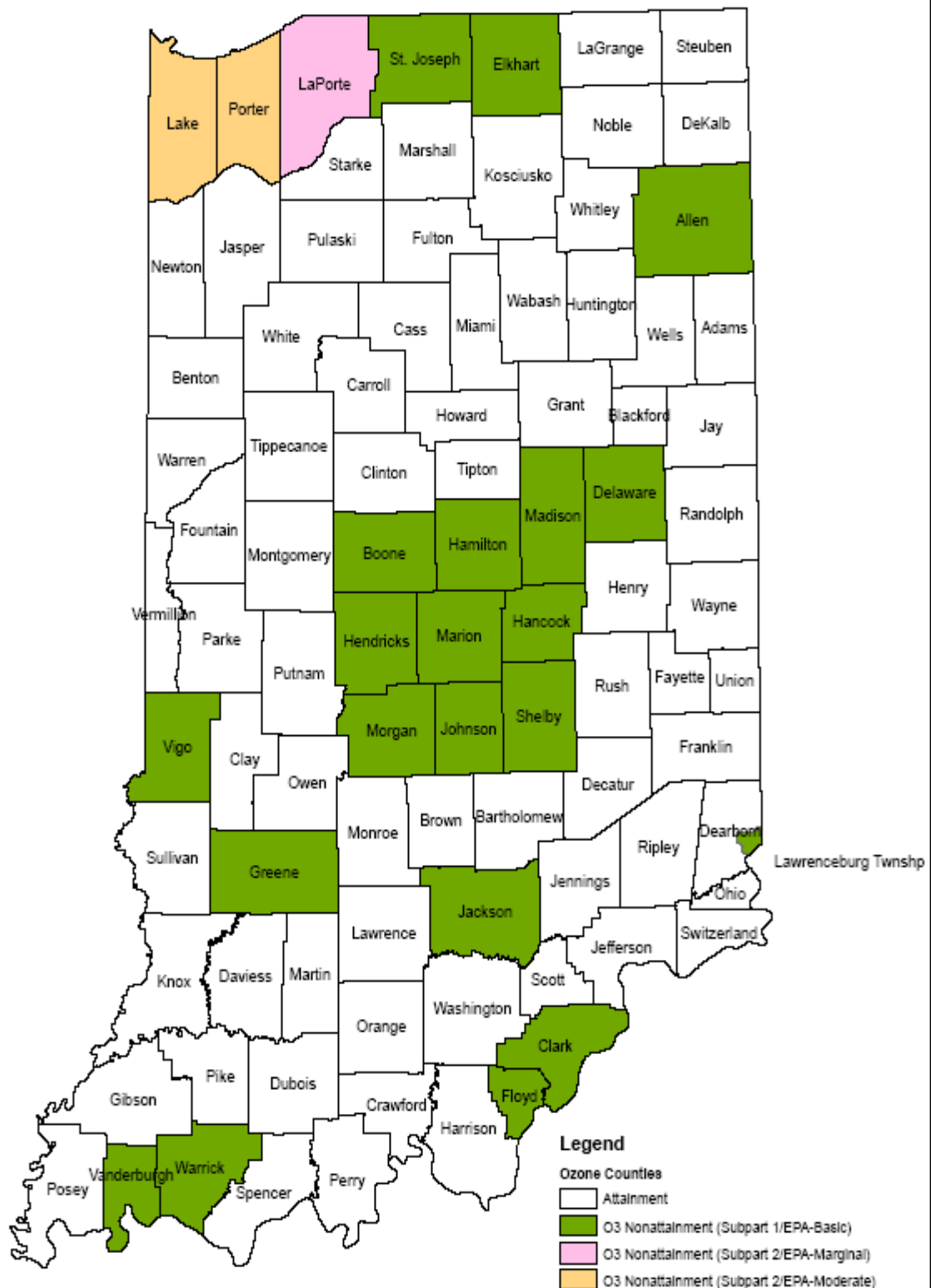
During the 2006 ozone season all 41 ozone monitors recorded a 4th high value below the standard and all 41 monitors had three-year design values that met the standard. The Central Indiana area was the last multi-county area with monitoring data to meet the standard. IDEM is preparing a Redesignation Petition and Maintenance Plan for Central Indiana, which includes the counties of Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby. This package will be submitted to the U.S. EPA in late 2006 with action expected in 2007.

The final area still designated nonattainment for ozone is Lawrenceburg Township located in Dearborn County. Dearborn County is part of the Cincinnati nonattainment area and therefore will not be able to be redesignated to attainment until the Cincinnati area is redesignated. At the end of the 2006 ozone season, Cincinnati had one monitor that marginally exceeded the standard of 85 parts per billion. There are no ozone monitors in Dearborn County.

For more information regarding ozone or the state's Redesignation Petitions and Maintenance Plans, visit www.in.gov/idem/programs/air/ or contact Laurence Brown of the Office of Air Quality at (800)451-6027 or 317-234-3097.

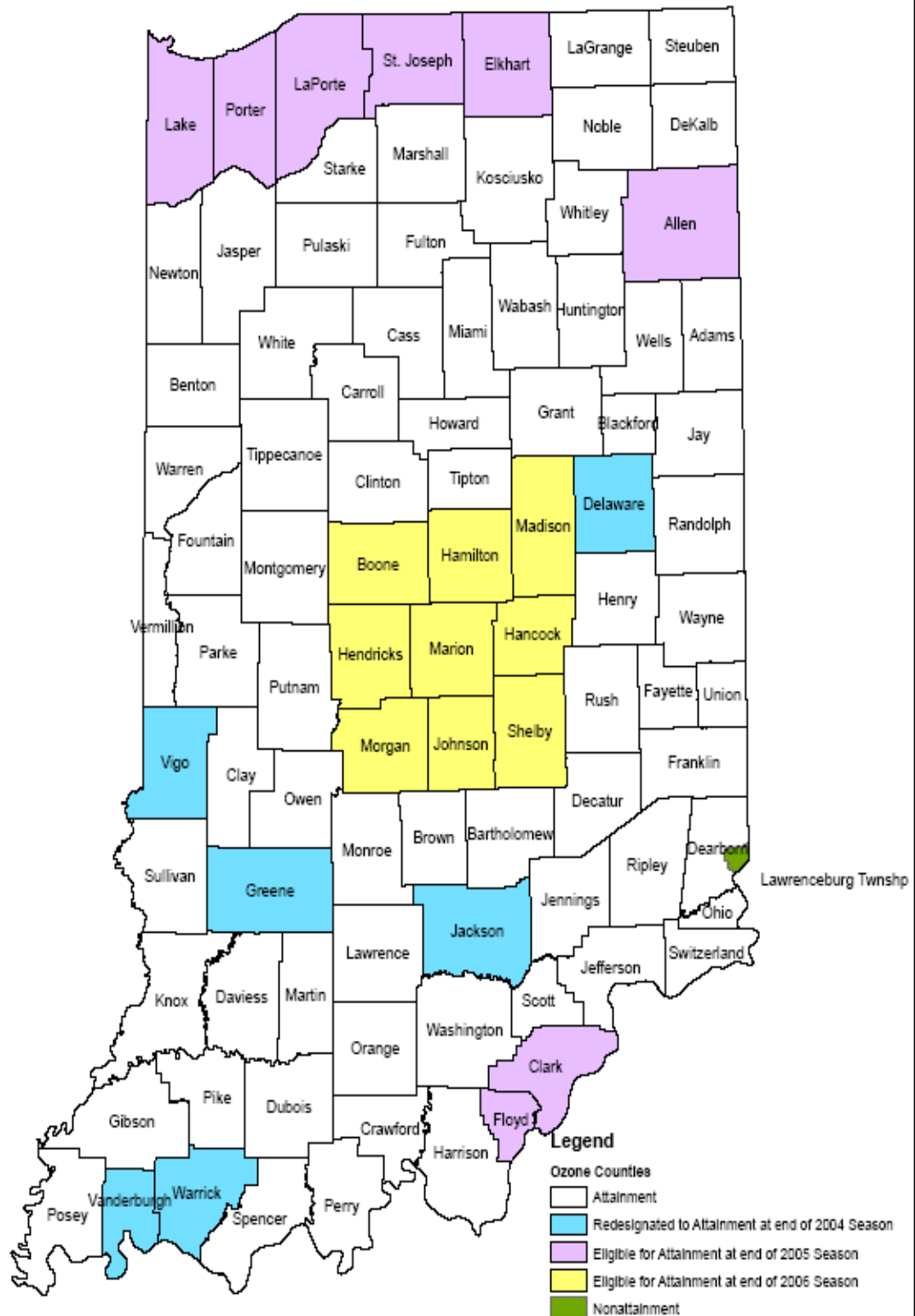
2004 8-Hour Ozone Designations

The map below shows the nonattainment designations that U.S. EPA made in April 2004. Twenty-three full counties and one partial county, Lawrenceburg Township in Dearborn County were designated as nonattainment for the new 8-hour ozone standard. That means those areas had a 3-year (2001-2003) design value for ozone that exceeded 85 parts per billion

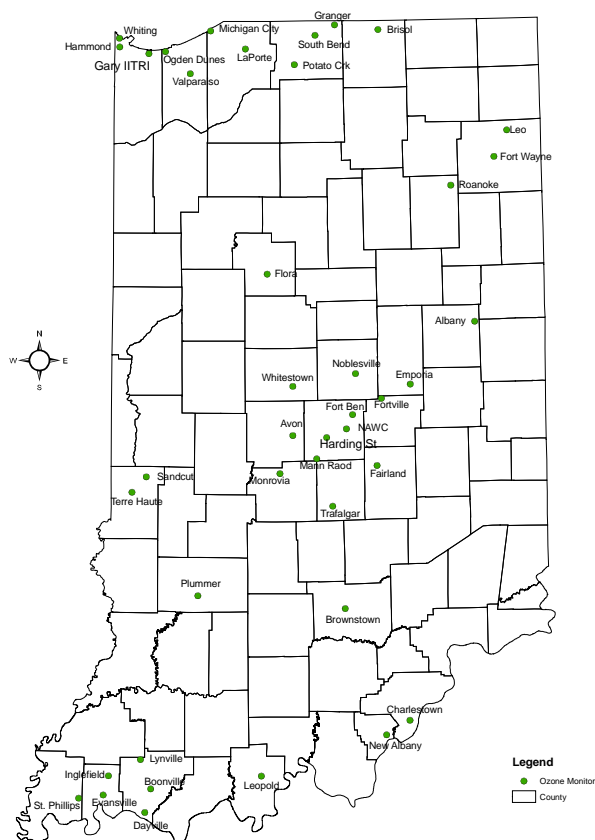


2005-2006 Changes in 8-Hour Ozone Designations

The map below shows the current designation status of the counties in Indiana. At the end of the 2006 ozone season, all twenty-three counties with monitoring data achieved the standard. Lawrenceburg Township in Dearborn County is part of the Cincinnati nonattainment area and won't be eligible for re-designation until the Cincinnati area is. Redesignation petitions are pending for eight counties and the Central Indiana area became eligible for redesignation at the close of the 2006 ozone season.



OZONE MONITORS



Ozone Monitoring

U.S. EPA provides guidelines for the placement of air monitors. Ozone monitors are placed based on the population density and manufacturing levels in an area since ozone levels are expected to be higher in those areas. In 2006, there were 41 ozone monitors located throughout the state from which IDEM and local air agencies collected data.

Ozone levels are monitored 24 hours per day and rolling 8-hour averages are calculated. The highest 8-hour average is what is reported for the day.

Design values are calculated at the end of the ozone season using the fourth highest value from the current year and the preceding two years to get a three year average. This is the design value that U.S. EPA uses to determine if an area is in attainment for ozone.

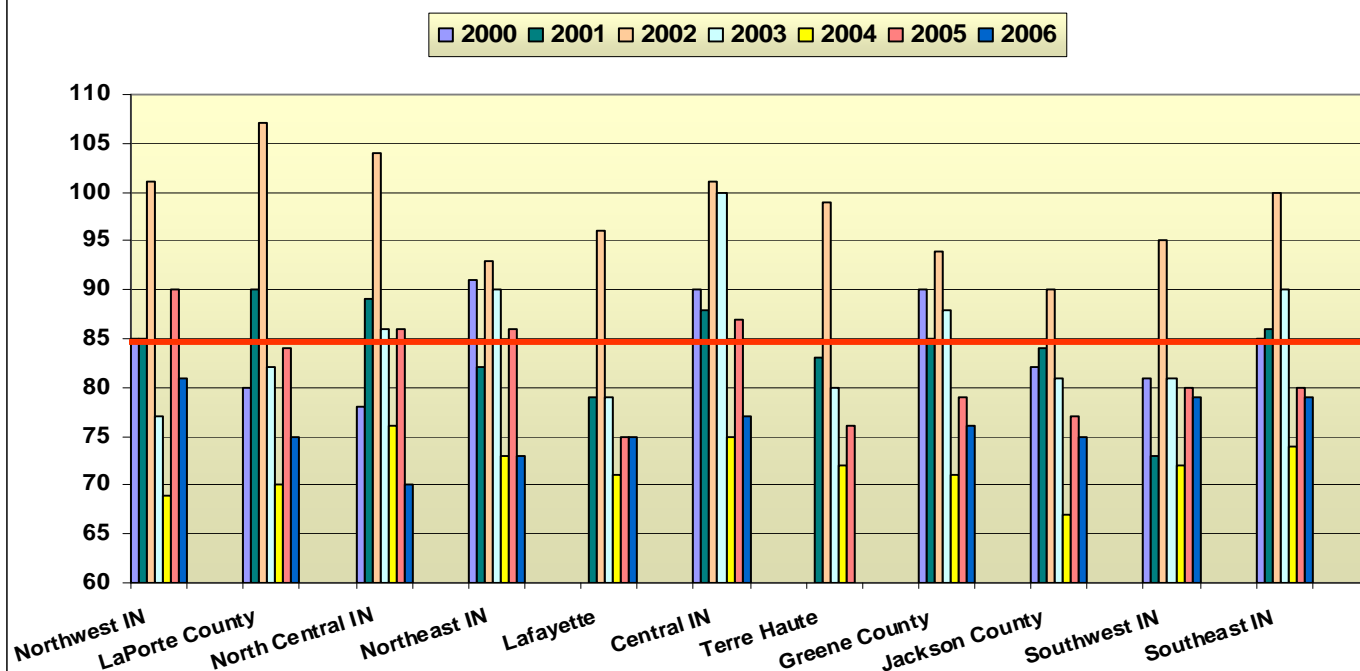
For example, the 2004-2006 design value shown on the table below is the average of the 4th high value for 2004, 2005, 2006. Design values have been calculated for each monitor in the state.

At the close of the 2006 ozone season, all ozone monitors across Indiana recorded a 4th high value below the standard and all monitors had a three-year design value that met the standard. No monitors in areas with a Maintenance Plan to attainment had a violation of the standard or of the design value.

2004-2006 Fourth High Values and 2004-2006 Design Values

County	Site	2004 4th High	2005 4th High	2006 4th High	2004- 2006 Design Value	County	Site	2004 4th High	2005 4th High	2006 4th High	2004-2006 Design Value
Allen	Leo	73	86	73	77	Marion	Mann Rd.	65	76	74	71
Allen	Ft. Wayne	69	76	71	72	Marion	Ft. Harrison	73	80	76	76
Boone	Whitestown	72	82	80	78	Marion	Harding St.	66	81	76	74
Carroll	Flora	71	75	75	73	Marion	Naval War- fare	71	80	72	74
Clark	Charlestown	74	80	79	77	Morgan	Monrovia	72	78	77	75
Delaware	Albany	70	81	72	74	Perry	Leopold	78	86	79	81
Elkhart	Bristol	77	86	67	76	Porter	Odgen Dunes	69	90	70	76
Floyd	New Albany	71	80	76	75	Porter	Valparaiso	72	78	71	73
Greene	Plummer	73	79	76	76	Posey	St. Phillips	71	77	58	68
Hamilton	Noblesville	75	87	77	79	St. Joseph	Potato Creek	73	78	70	73
Hancock	Fortville	72	80	75	75	St. Joseph	Granger	76	86	70	77
Hendricks	Avon	71	78	73	74	St. Joseph	South Bend	72	84	64	73
Huntington	Roanoke	69	78	72	73	Shelby	Fairland	71	80	73	74
Jackson	Brownstown	68	77	75	73	Vanderburgh	Evansville	72	80	75	75
Johnson	Trafalgar	73	77	78	76	Vanderburgh	Inglefield	58	56	81	65
Lake	Gary IITRI	64	89	61	71	Vigo	Terre Haute	57	64	59	60
Lake	Whiting	64	88	81	77	Vigo	Sandcut	72	76	72	73
Lake	Hammond	67	87	75	76	Warrick	Yankeetown (Alcoa)	74	Site closed in 2004. Monitor moved to Dayville		
LaPorte	Michigan City	70	84	75	76	Warrick	Boonville	73	80	78	77
LaPorte	LaPorte	68	89	69	75	Warrick	Lynville	66	76	70	70
Madison	Emporia	72	78	73	74	Warrick	Dayville	Site opened in 2005	77	78	77
Values exceed the standard of 85 ppb									2 year average		

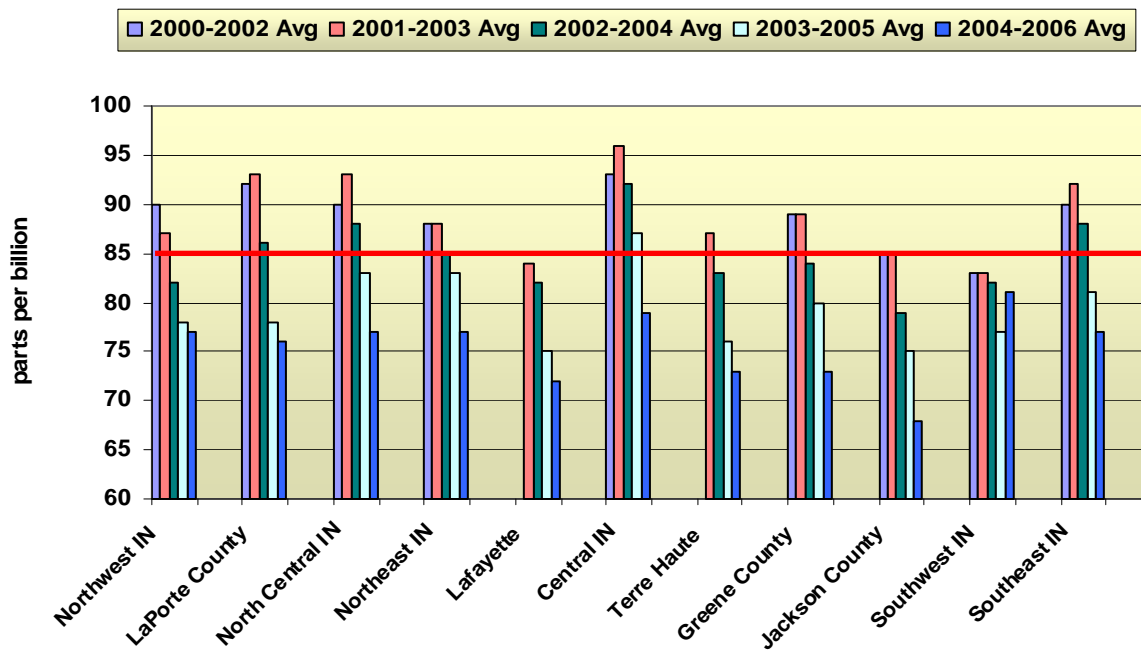
4th Highest Ozone Values by Region (2000-2006)



An 8-Hour Exceedance versus a Violation of the Standard

An exceedance of the standard occurs when an 8-hour average value is equal to or greater than 85 parts per billion. A violation of the standard occurs when the 3-year average of the fourth highest value for each ozone season is equal to or greater than 85 parts per billion. A monitor can exceed the standard without being in violation. No violations of the standard occurred in the 2004-2006 three-year period.

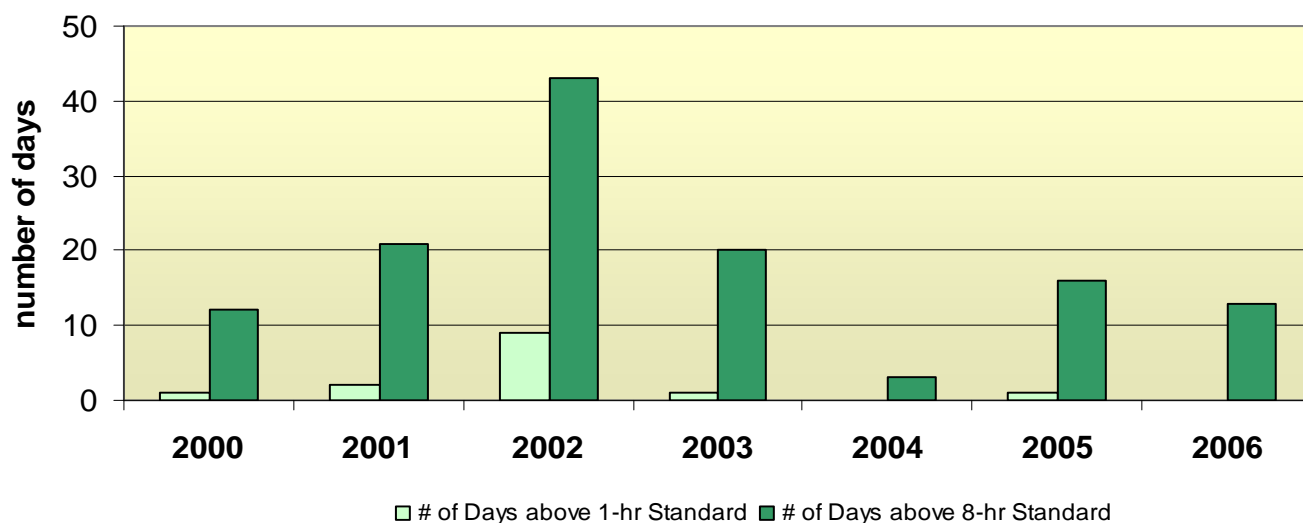
3 Year Ozone Design Value by Region (2000-2006)



Ozone Standard Exceedance Days

The 1-Hour Ozone Standard was revoked by U.S. EPA on June 15, 2005. However, for the sake of information, the one hour standard is still included in this graph. There were no exceedances of the one hour standard in 2006.

Ozone Standard Exceedance Days



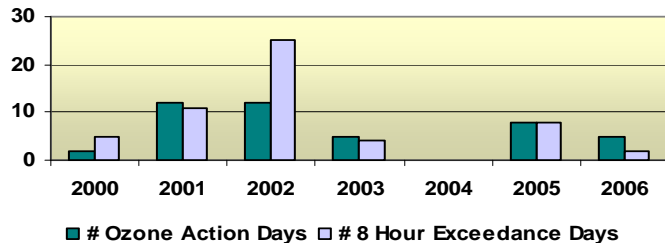
Total Days by Monitor of 8-Hour Ozone Exceedances 2000-2006

County	Location	00	01	00	03	04	05	06	County	Location	00	01	02	03
Allen	Leo	4	2	13	4	0	8	0	Marion	Fort Harrison	2	6	11	5
Allen	Fort Wayne	1	0	15	3	0	0	0	Marion	Harding Street	3	3	12	2
Boone	Whitestown	2	3	13	6	1	0	1	Marion	Mann Road	2	0	12	2
Carroll	Flora		1	12	2	0	0	0	Marion	NAC	2	2	16	3
Clark	Charlestown	4	4	17	4	0	3	3	Morgan	Monrovia	5	2	13	2
Delaware	Albany		3	12	5	0	2	0	Perry	Leopold				
Elkhart	Bristol			18	4	0	5	0	Porter	Ogden Dunes	4	4	12	1
Floyd	New Albany	0	0	13	4	0	2	1	Porter	Valparaiso	3	0	17	2
Greene	Plummer	4	5	14	4	0	0	0	Posey	St. Phillips	5	0	13	1
Hamilton	Noblesville	4	4	17	5	0	4	1	Shelby	Fairland	4	6	14	4
Hancock	Fortville	4	8	18	5	0	1	0	St. Joseph	Granger	1	6	22	5
Hendricks	Avon	4	3	9	2	0	1	0	St. Joseph	Potato Creek	1	2	14	1
Huntington	Roanoke	4	1	10	3	0	0	0	St. Joseph	South Bend	3	3	16	1
Jackson	Brownstown	3	2	9	0	0	0	0	Vanderburgh	Evansville	1	0	16	2
Johnson	Trafalgar	3	2	11	2	0	1	0	Vanderburgh	Inglefield	0	0	5	1
Lake	Gary IITRI	1	3	8	0	0	7	0	Vigo	Sandcut		0	6	0
Lake	Hammond	4	8	18	2	0	5	0	Vigo	Terre Haute	1	2	2	0
Lake	Whiting					0	4	2	Warrick	Boonville	0	1	13	2
LaPorte	LaPorte	3	0	15	3	0	4	0	Warrick	Dayville				
LaPorte	Michigan City	3	8	15	2	0	3	0	Warrick	Lynnville	0	1	12	2
Madison	Emporia	1	4	16	8	0	1	0	Warrick	Yankeetown	0	1	17	2
Indicates monitor was not in operation that year.														

Number of Ozone Action Days 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Northwest Indiana	2	12	12	5	0	8	5
North Central Indiana	3	10	15	9	0	7	4
Northeast Indiana	4	6	14	9	0	5	4
Central Indiana	4	7	14	8	0	9	3
West Central Indiana	2	0	0	0	0	6	2
Southwest Indiana	3	4	16	4	0	8	9
Southern Indiana	5	7	14	4	1	8	8

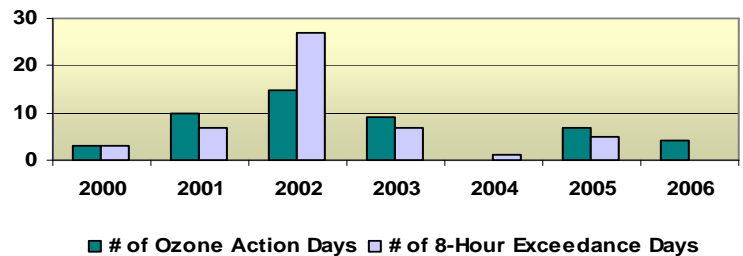
Northwest Indiana
Ozone Action Days vs 8 Hour Exceedance Days



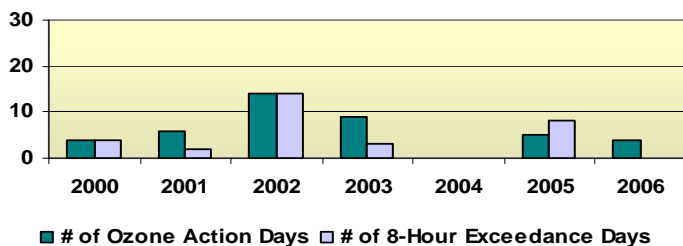
Number of 8-Hour Exceedance Days 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Northwest Indiana	5	11	25	4	0	8	2
North Central Indiana	3	7	27	7	1	5	0
Northeast Indiana	4	2	14	3	0	8	0
Central Indiana	5	10	26	11	1	5	2
West Central Indiana	1	2	10	2	0	1	0
Southwest Indiana	5	1	20	1	0	4	2
Southern Indiana	4	4	18	4	0	3	3

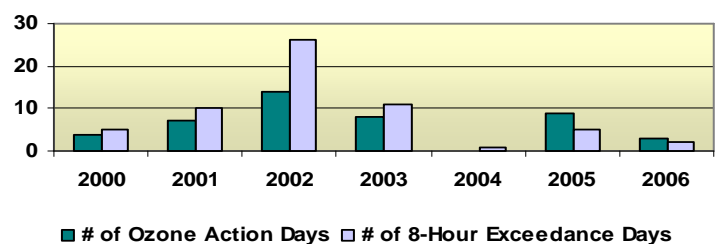
North Central Indiana
Ozone Action Days vs 8 Hour Exceedance Days



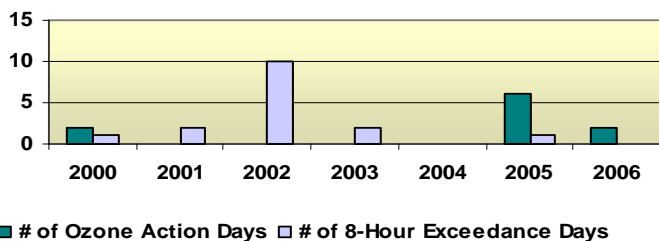
Northeast Indiana
Ozone Action Days vs 8 Hour Exceedance Days



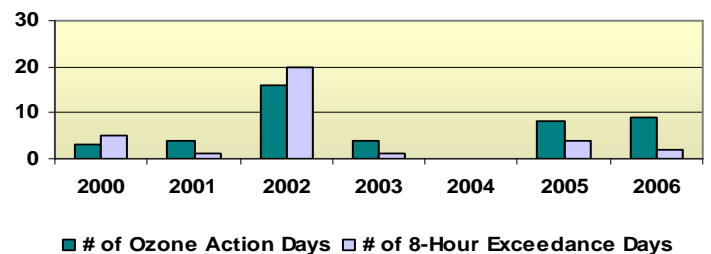
Central Indiana
Ozone Action Days vs 8 Hour Exceedance Days



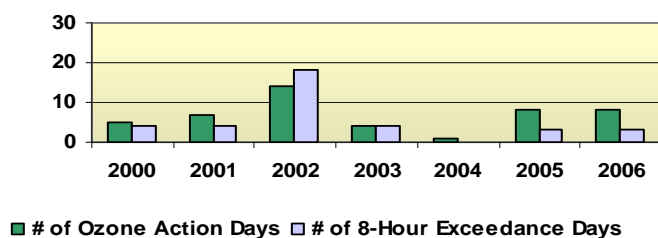
West Central Indiana
Ozone Action Days vs 8 Hour Exceedance Days



Southwest Indiana
Ozone Action Days vs 8 Hour Exceedance Days



Southern Indiana
Ozone Action vs 8 Hour Exceedance Days



Ozone Monitors by Area of the State

Area	Counties	
Northwest	Lake Porter	LaPorte
North Central	Elkhart	St. Joseph
Northeast	Allen	
Central	Boone Delaware Hamilton Hancock Hendricks	Johnson Madison Marion Morgan Shelby
West Central	Vigo	
Southwest	Vanderburgh Posey	Warrick
Southern	Clark	Floyd

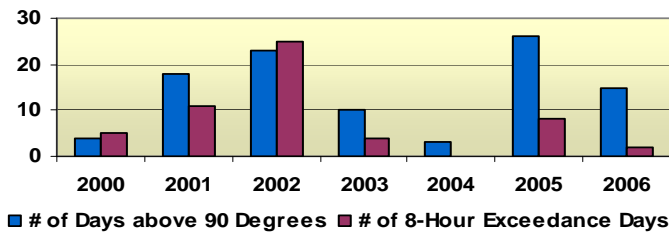
Number of 90 Degree Days 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Northwest Indiana	4	18	23	10	3	26	15
North Central Indiana	4	15	23	8	1	22	13
Northeast Indiana	2	8	23	3	1	24	10
Central Indiana	5	11	36	6	0	21	10
West Central Indiana	5	11	36	6	0	58	42
Southwest Indiana	22	30	56	23	9	46	32
Southern Indiana	14	21	40	15	9	50	31

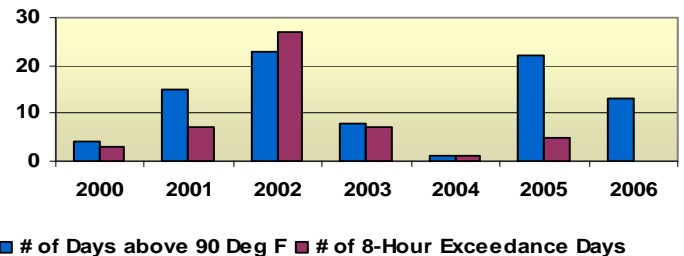
Number of 8-Hour Exceedance Days 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Northwest Indiana	5	11	25	4	0	8	2
North Central Indiana	3	7	27	7	1	5	0
Northeast Indiana	4	2	14	3	0	8	0
Central Indiana	5	10	26	11	1	5	2
West Central Indiana	1	2	10	2	0	1	0
Southwest Indiana	5	1	20	1	0	4	2
Southern Indiana	4	4	18	4	0	3	3

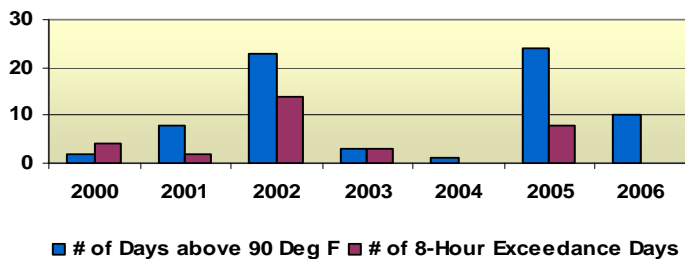
Northwest Indiana
90 Degree Days vs 8 Hour Exceedance Days



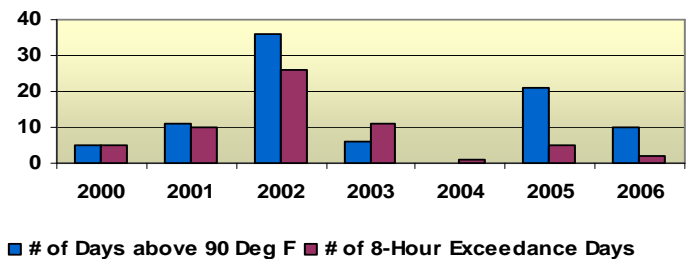
North Central Indiana
90 Degree Days vs 8 Hour Exceedance Days



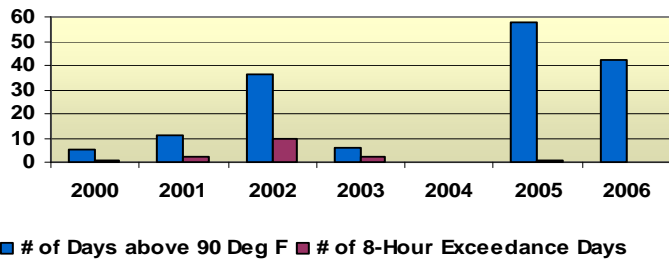
Northeast Indiana
90 Degree Days vs 8 Hour Exceedance Days



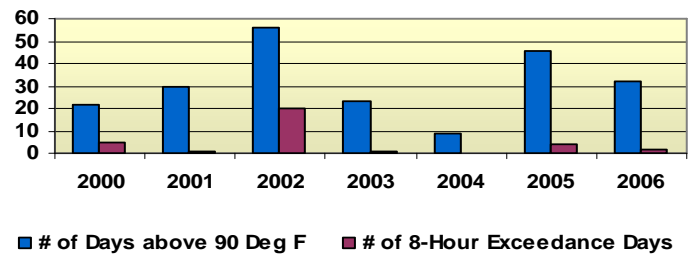
Central Indiana
90 Degree Days vs 8 Hour Exceedance Days



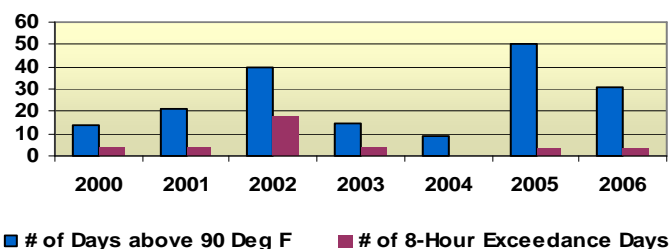
West Central Indiana
90 Degree Days vs 8 Hour Exceedance Days



Southwest Indiana
90 Degree Days vs 8 Hour Exceedance Days



Southern Indiana
90 Degree Days vs 8 Hour Exceedance Days



Ozone Monitors by Area of the State

Area	Counties	
Northwest	Lake Porter	LaPorte
North Central	Elkhart	St. Joseph
Northeast	Allen	
Central	Boone	Johnson
	Delaware	Madison
	Hamilton	Marion
	Hancock	Morgan
	Hendricks	Shelby
West Central	Vigo	
Southwest	Vanderburgh	Warrick
	Posey	
Southern	Clark	Floyd